WHAT IS CLAIMED IS:

1. A system for repositioning teeth from an initial tooth arrangement to a final tooth arrangement, said system comprising a plurality of dental incremental position adjustment appliances including:

a first appliance having a geometry selected to reposition the teeth from the initial tooth arrangement to a first intermediate arrangement;

one or more intermediate appliances having geometries selected to progressively reposition the teeth from the first intermediate arrangement to successive intermediate arrangements; and

a final appliance having a geometry selected to progressively reposition the teeth from the last intermediate arrangement to the final tooth arrangement;

wherein the surface of each appliance has a lubricious composition coupled thereto.

2. A system as in claim 1, wherein the appliances comprise polymeric shells having cavities shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement.

3. A system as in claim 2, wherein the tooth positions defined by the cavities in each successive appliance differ from those defined by the prior appliance by no more than 2 mm.

4. A system as in claim 1, comprising at least two intermediate appliances.

5. A system as in claim 4, comprising at least ten intermediate appliances.

6. A system as in claim 5, comprising at least twenty-five intermediate appliances.

7. A method for repositioning teeth from an initial tooth arrangement to a final tooth arrangement, said method comprising:

placing a first incremental position adjustment appliance in a patient's mouth, wherein the first appliance has a geometry selected to reposition the teeth from the initial

tooth arrangement to a first intermediate arrangement;

successively replacing one or more additional appliances, wherein the additional appliances have geometries selected to progressively reposition the teeth from the first intermediate arrangement to successive intermediate arrangements; and

placing a final appliance into the patient's mouth, wherein the final appliance has a geometry selected to progressively reposition the teeth from the last intermediate arrangement to the final tooth arrangement.

8. A method as in claim 7, wherein the appliances comprise polymeric shells having cavities shaped to receive and resiliently reposition teeth from one arrangement to a successive arrangement.

9. A method as in claim 8, where the tooth positions defined by the cavities in each successive appliance differ from those defined by the prior appliance by no more than 2 mm.

10. A method as in claim 7, wherein the successively placing step comprises placing at least two additional appliances prior to placing the final appliance.

11. A method as in claim 10, wherein the successively placing step comprises placing at least ten additional appliances.

12. A method as in claim 11, wherein the successively placing step comprises placing at least twenty-five additional appliances.

13. A method as in claim 7, wherein the appliances are successively replaced at an interval in the range from
2 days to 20 days.

14. An improved method for repositioning teeth using appliances comprising polymeric shells having cavities shaped to receive and resiliently reposition teeth to produce a final tooth arrangement, wherein the improvement comprises determining at the outset of treatment geometries for at least three appliances which are to be worn successively by a

patient to reposition teeth from an initial tooth arrangement to the final tooth arrangement.

15. An improved method as in claim 14, wherein at least four geometries determined at the outset.

16. An improved method as in claim 15, wherein at least ten geometries are determined at the outset.

17. An improved method as in claim 16, wherein at least twenty-five geometries are determined at the outset.

18. An improved method as in claim 14, wherein the tooth positions defined by the cavities in each successive geometry differ from those defined by the geometry by no more than 2 mm.

19. A method for fabricating a dental appliance, said method comprising:

providing a digital data set representing a modified tooth arrangement for a patient;

controlling a fabrication machine based on the digital data set to produce a positive model of the modified tooth arrangement;

producing the dental appliance as a negative of the positive model;

applying a lubricious composition to the surface of the dental appliance.

20. A method as in claim 19, wherein the controlling step comprises:

providing a volume of non-hardened polymeric resin;

scanning a laser to selectively harden the resin in a shape based on the digital data set to produce the positive model.

21. A method as in claim 19, wherein the producing step comprises molding the appliance over the positive model.

22. A method for fabricating a dental appliance, said method comprising:

providing a first digital data set representing a modified tooth arrangement for a patient;

producing a second digital data set from the first data set, wherein the second data set represents a negative model of the modified tooth arrangement;

controlling a fabrication machine based on the second digital data set to produce the dental appliance;

applying a lubricious composition to the surface of the dental appliance.

23. A method as in claim 22, wherein the controlling step comprises selectively hardening a non-hardened resin to produce the appliance and separating the appliance from the remaining liquid resin.

24. A method as in claim 22, wherein the appliance comprises a polymeric shell having a cavity shaped to receive and resiliently reposition teeth from an initial tooth arrangement to the modified tooth arrangement.

25. A method as in claim 22, wherein the appliance is coated with a polar chemical to provide a hydrophilic surface.

26. A method as in claim 25, wherein the chemical is one of hydrogels, 2-HEMA (2-hydroxy ethyl methacrylate), NVP (n-vinyl pyrolidone), or acrylyamide, PEO (polyethylene oxide) at various molecular weights, PPO (polypropylene oxide), MA (methacrylic acid), and AA (acrylic acid).

27. A method as in claim 22, wherein the appliance is coated with a non-polar chemical to provide a hydrophobic surface.

28. A method as in claim 22, wherein the appliance is coated with an oily substance to provide a hydrophobic surface.

29. A method as in claim 27, wherein the oily substance is either PTFE or silicone or mineral oil.

30. A method as in claim 22, wherein the appliance is coated with a chemical to make its surface slippery.

31. A method as in claim 22, wherein the appliance has a surface adapted to imbibe and hold a micromolecular layer of water to lubricate the lips or the side of the mouth.

32. A method as in claim 22, wherein the composition is applied by a spraying operation.

33. A method as in claim 22, wherein the composition is applied using an electrostatic discharge and further comprising baking the appliance.

34. A method as in claim 22, wherein the composition is applied by a dipping operation.

35. A method as in claim 22, wherein the surface of the appliance is pretreated.

36. A method as in claim 35, wherein the precoating treatment includes one or more of the following: corona discharging, acid etching or solvent etching.

37. A method as in claim 35, wherein the precoating treatment includes one or more of the following: sanding, abrasing, tumbling and sand blasting.

38. A method as in claim 22, wherein the surface of appliance can be modified using one or more of the following: coating, grafting, laminating and interpenetrating networks.

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